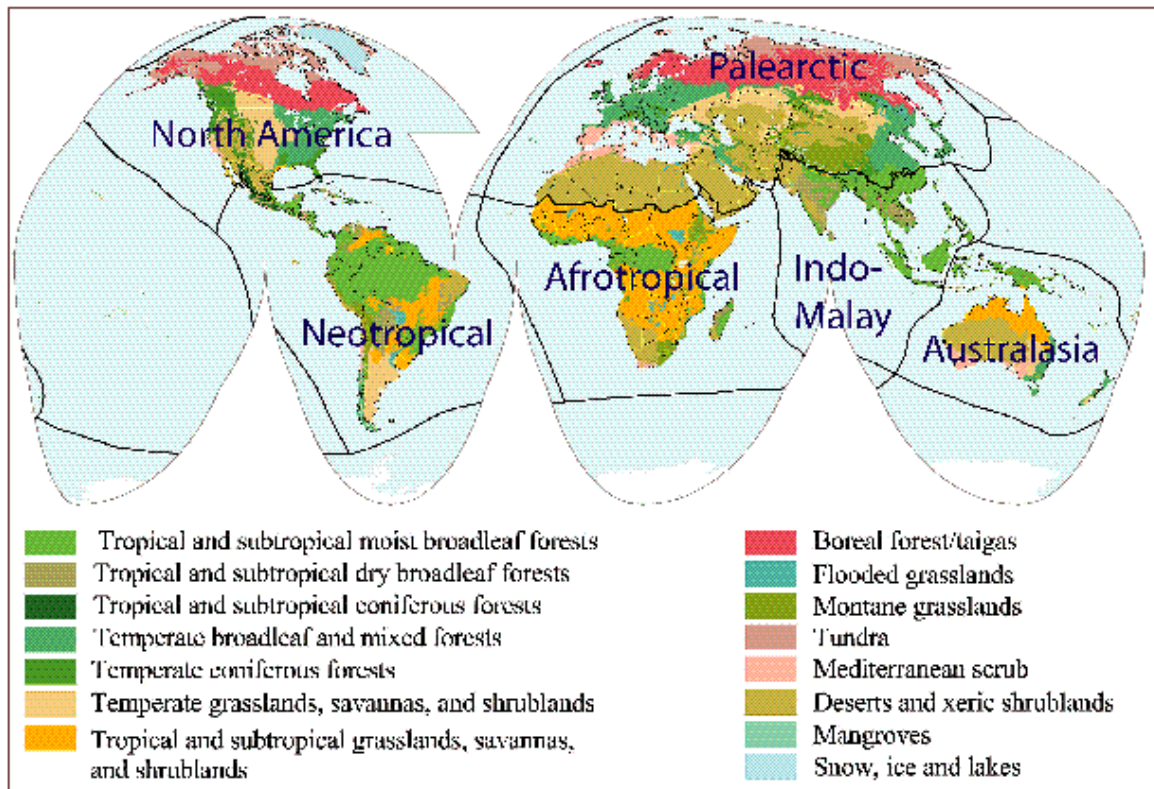


Human Activity
and
World Population:
Any connection
to
Global
Warming?

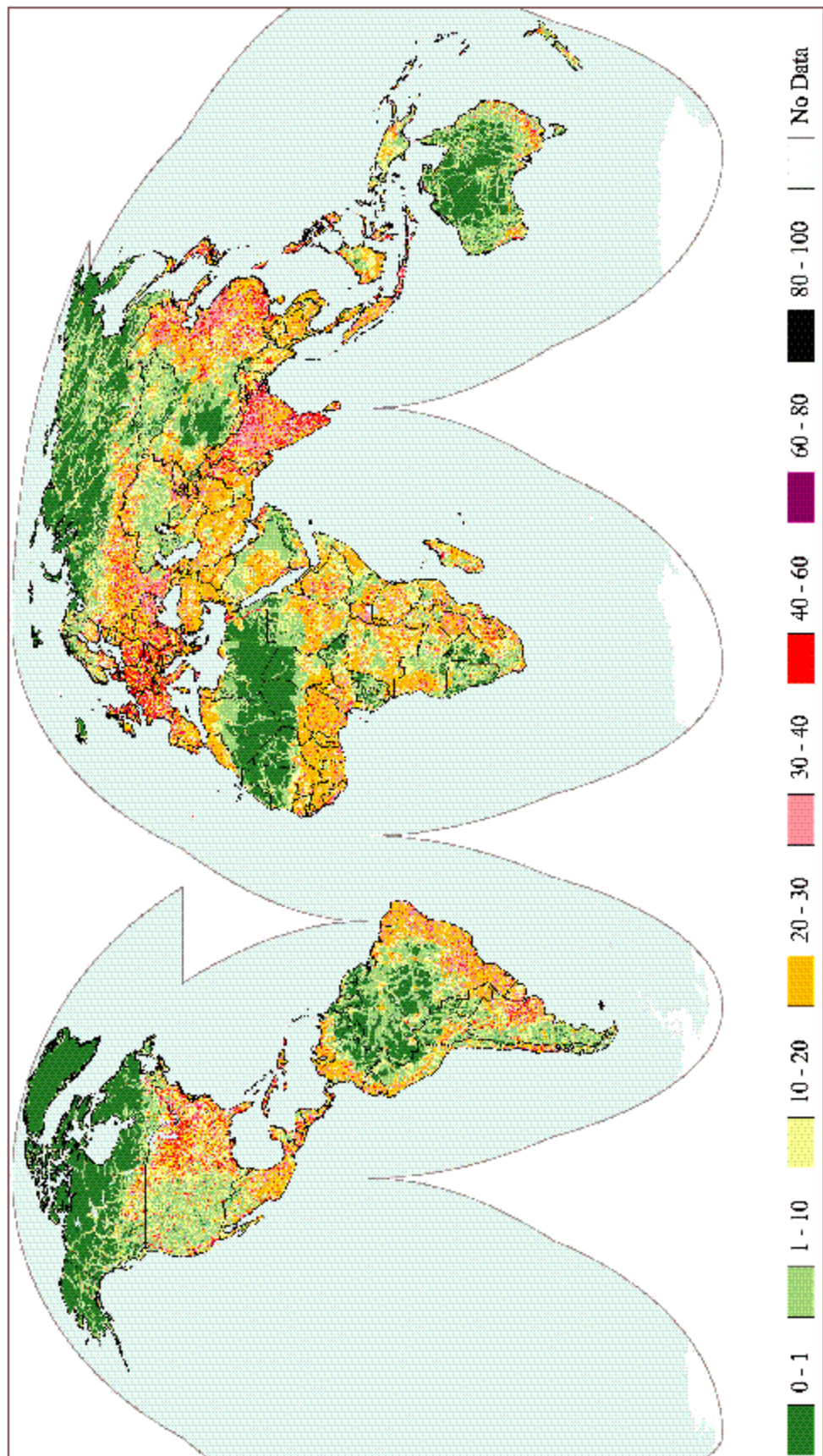
Gordon J. Aubrecht, II
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Ohio State University

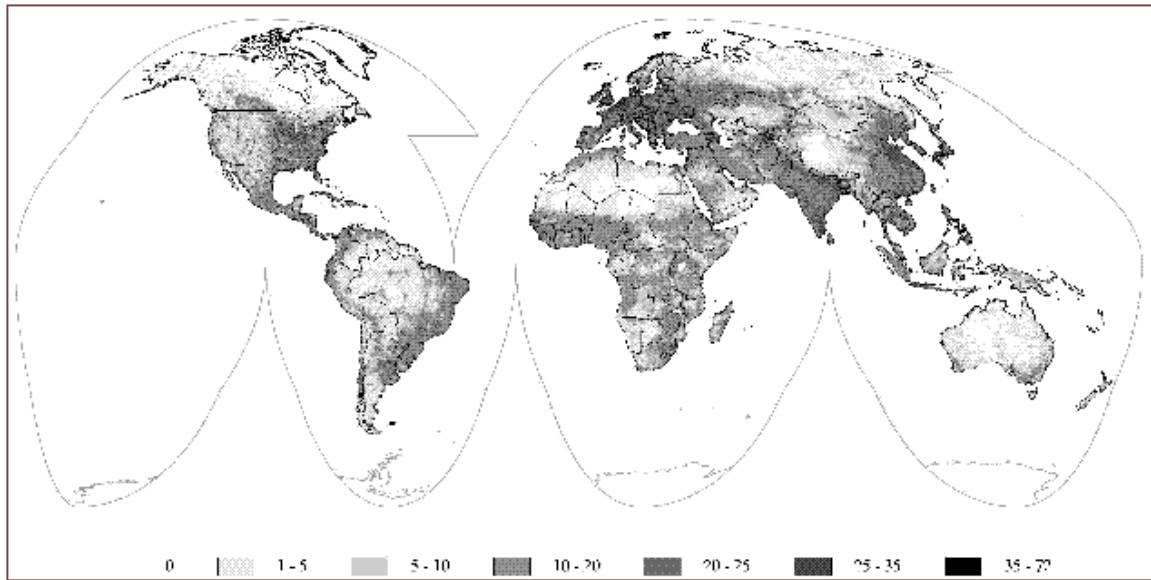
Eric W. Sanderson, Malanding Jaiteh, Marc A. Levy, Kent H. Redford, Antoinette V. Wannebo, and Gillian Woolmer, “The human footprint and the last of the wild,” *BioScience* 52, 891 (2002).

“The human footprint is a global map of human influence on the land surface, which suggests that human beings are stewards of nature, whether we like it or not.”



Biomes and biogeographic realms that are used to normalize human influence





“The human influence index. Scores range from 0 to a maximum of 72; higher scores indicate greater human influence, lower scores less human influence. Analysis indicates that **83% of the land surface is influenced by one or more of the following factors: human population density greater than one person per square kilometer (km²); agricultural land use; built-up areas or settlements; access within 15 km of a road, major river, or the coastline; and nighttime light bright enough to be detected by satellite sensor. Almost 98% of the areas where rice, wheat, or maize can be grown (FAO 2000) is influenced by one or more of these factors. The analysis excludes Antarctica and most oceanic islands, and national boundaries are not authoritative.”**

The 1992 National Academy study:
Panel on Policy Implications of Greenhouse Warming (D. J. Evans, R. M. Adams, G. F. Carrer, R. N. Cooper, R. A. Frosch, T. H. Lee, J. T. Mathews, W. D. Nordhaus, G. H. Orians, S. H. Schneider, M. Strong, C. Tickell, V. J. Tschinkel, and P. E. Waggoner), *Policy Implications of Greenhouse Warming: Mitigation, adaptation, and the science base* (Washington, D.C: National Academy Press, 1992)

This study says that there are many negative-cost and zero-cost options for dealing with reduction of greenhouse gases.

The Interlaboratory Working Group, scientists and engineers from Lawrence Berkeley and Oak Ridge National Laboratories, have pointed to many negative, zero, and low-cost possibilities in a 2000 study. Their advanced scenario, in which a significant carbon tax is imposed (\$25/t or \$50/t), a carbon emissions trading is instituted, and research and development is funded at a significant level, showed a reduction in overall energy use (~10%), a modest decrease in the American energy cost (8% to 3%), and a 13% to 17% decrease in carbon emissions compared to a “business-as-usual” scenario.

D. S. Reay, “**Costing climate change**,” *Phil. Trans. R. Soc. Lond. A* **360**, xx (2002). Published online; DOI: 10.1098/rsta.2002.1063.

There are significant matters of *individual* choice that could affect the economies and emissions in the industrialized nations, while saving the individuals significant amounts of money. In the analysis, the environmentally-aware individual is shown to save about \$1000/yr compared to the unaware individual.

Reay introduces the unaware Mr. Carbone, who generates 1,250 tonnes of greenhouse gases over his lifetime, while Mr. Bellamy, who is environmentally aware, generates only 370 tonnes. Both as kids attend preschool, but Mr. Carbone arrives via a four wheel drive car while Mr. Bellamy arrives on the back of a bicycle. Mr. Carbone’s family drive him to school, while Mr. Bellamy’s family has him take the (no-cost) school bus. The Carbones vacation abroad while the Bellamys vacation domestically. Mr. Carbone drives a Jaguar in his younger days, a Volvo when he is somewhat older, and a VW Golf later. Mr. Bellamy takes public transportation and rides a bicycle.

The older men differ in use of energy inefficient (Carbone) and energy-efficient (Bellamy) appliances and lighting choices. As a result of these different choices (and neglecting the differences in energy use in their workplaces), Mr. Carbone's lifetime energy cost would be £130,000 (\$81,000), while Mr. Bellamy's lifetime cost is significantly less, at £49,000 (\$31,000).

Reay concludes that “cuts in global greenhouse gas emissions ... cannot be justifiably dismissed as posing too large an economic burden” and “[c]ontrary to the assertions of the US administration, the cuts proposed under the Kyoto Protocol are both economically viable and vital as a basis for future international GHG abatement.”